

Reissue of Patent : 6,263,879
Issued : 24 July 2001

AMENDMENTS TO THE CLAIMS

Please amend Claims 1-13 as follows:

Claim 1. (Currently amended) A laser beam ophthalmological surgery method for treating [presbyopic] presbyopia in a patient's eye by ablating the sclera comprising the steps of:

selecting a pulsed ablation laser having a pulsed output beam of predetermined wavelength;

selecting a beam spot controller mechanism for reducing and focusing said selected ablative laser's output beam onto a predetermined spot size on the surface of the eye [cornea];

selecting a scanning mechanism for scanning said ablative laser output beam;

coupling said ablative laser beam to a scanning device for scanning said ablative laser over a predetermined area of the [corneal] sclera; and

controlling said scanning mechanism to deliver said ablative laser beam in a predetermined pattern in said predetermined area onto the surface of the [cornea] eye to photoablate the sclera tissue outside the limbus to a depth of 80-90% of the thickness of the scleral tissue, whereby a presbyopic patient's vision is corrected by expansion of the sclera.

Claim 2. (Currently amended) A laser beam ophthalmological surgery method for treating [presbyopic] presbyopia in a patient's eye by ablating the sclera in accordance with claim 1 in which the step of selecting a pulsed ablation laser includes selecting a pulsed ablative laser having a predetermined wavelength between 0.15-0.32 microns.

Claim 3. (Currently amended) A laser beam ophthalmological surgery method for treating [presbyopic] presbyopia in a patient's eye by ablating the sclera in accordance with claim 1 in which the step of selecting a pulsed ablation laser includes selecting a pulsed ablative laser having a wavelength between 2.6 and 3.2 microns.

Claim 4. (Currently amended) A laser beam ophthalmological surgery method for treating [presbyopic] presbyopia in a patient's eye by ablating the sclera in accordance with claim 1 in which the step of selecting a pulsed ablation laser includes selecting a solid state laser.

Claim 5. (Currently amended) A laser beam ophthalmological surgery method for treating [presbyopic] presbyopia in a patient's eye by ablating the sclera in accordance with claim

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1 in which the step of selecting a pulsed ablation laser includes selecting a pulsed gas laser having a pulse duration shorter than 200 nanoseconds.

Claim 6. (Currently amended) A laser beam ophthalmological surgery method for treating [presbyopic] presbyopia in a patient's eye by ablating the sclera in accordance with claim 1 in which [said] the step of selecting a beam spot controller includes selecting a pulsed ablative laser having a focusing lens with focal length of between 10 and 100 cm selected to obtain a predetermined laser beam spot size having a diameter of between 0.1 and 0.8 mm on the eye [corneal] surface.

Claim 7. (Currently amended) A laser beam ophthalmological surgery method for treating [presbyopic] presbyopia in a patient's eye by ablating the sclera in accordance with claim 1 in which the step of selecting a beam spot controller includes selecting a beam spot controller having a focusing lens with cylinder focal length of between 10 and 100 cm to obtain a laser beam spot having a line size of about 0.1-0.8 mm x 3-5 mm on the [corneal] eye surface.

Claim 8. (Currently amended) A laser beam ophthalmological surgery method for treating [presbyopic] presbyopia in a patient's eye by ablating the sclera in accordance with claim 1 in which the step of selecting a scanning mechanism includes selecting a scanning mechanism having a pair of reflecting mirrors mounted to a galvanometer scanning mechanism for controlling said laser output beam into a predetermined pattern.

Claim 9. (Currently amended) A laser beam ophthalmological surgery method for treating [presbyopic] presbyopia in a patient's eye by ablating the sclera in accordance with claim 1 in which said ablative laser is delivered to the surface of the [cornea] eye by an optical fiber.

Claim 10. (Currently amended) A laser beam ophthalmological surgery method for treating [presbyopic] presbyopia in a patient's eye by ablating the sclera in accordance with claim 1 in which the step of selecting a scanning mechanism includes selecting a hand-held optical fiber coupled to the ablation laser for scanning said laser output beam into a predetermined pattern.

Claim 11. (Currently amended) A laser beam ophthalmological surgery method for treating [presbyopic] presbyopia in a patient's eye by ablating the sclera in accordance with claim 1 in which the predetermined pattern is generated by the steps of:

selecting a metal mask having at least one slit therein; and

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positioning the selected mask over the eye [cornea] surface for scanning the ablation laser thereover for controlling the ablation slit pattern on the sclera tissue outside the limbus.

Claim 12. (Currently amended) A laser beam ophthalmological surgery method for treating [presbyopic] presbyopia in a patient's eye by ablating the sclera in accordance with claim 1 in which said predetermined pattern includes at least 3 radial lines around the area of the cornea outside the limbus.

Claim 13. (Currently amended) A laser beam ophthalmological surgery method for treating [presbyopic] presbyopia in a patient's eye by ablating the sclera in accordance with claim 1 in which said predetermined pattern includes a ring pattern around the area of the cornea outside the limbus.

Please add new Claims 14-23 as follows:

Claim 14. (New) A method of improving accommodation and/or treating presbyopia, comprising:

cutting at least three spaced apart, substantially radial lines in the scleral tissue of a patient's eye outside the limbus to a depth of 80-90% of the thickness of the scleral tissue.

Claim 15. (New) A method as in Claim 14 wherein the lines are non-intersecting.

Claim 16. (New) A method as in Claim 14 wherein the step of cutting is performed using a pulsed laser.

Claim 17. (New) A method as in Claim 16 wherein the laser has a spot size of .1 mm to .8 mm.

Claim 18. (New) A method as in Claim 14 wherein the step of cutting is performed using a laser having a wavelength of approximately 2.6 - 3.2 microns.

Claim 19. (New) A method as in Claim 14 wherein the step of cutting is performed using a laser having a wavelength of about 308 nanometers.

Claim 20. (New) A method as in Claim 14 wherein the step of cutting is performed using a laser having a wavelength of about 193 nanometers.

Claim 21. (New) A method as in Claim 14 wherein the step of cutting is performed using a laser having an average power of about 30 mW to 3 W.

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Claim 22. (New) A method as in Claim 14 wherein the step of cutting includes cutting 8 lines in the sclera.

Claim 23. (New) A method as in Claim 14 wherein the step of cutting includes using an optical fiber tip to deliver the laser beam to the sclera.